REMARKS

This paper is being provided in response to the October 4, 2002 Final Office Action for the above-referenced application. In this response, Applicants have amended Claim 1 in order to clarify that which Applicants deem to be the invention. Applicants respectfully submit that the modifications to the claim are all supported by the originally filed application.

In response to the rejection of Claims 1-103 under 35 U.S.C. 112, second paragraph, as being indefinite, Applicants have amended Claim 1 in accordance with remarks set forth in the Office Action. Accordingly, Applicants respectfully request that this rejection be reconsidered and withdrawn.

The rejection of Claims 1-6, 19-22, 35-40, 53-56, 69-74, 87-90 and 103 under 35 U.S.C. §102(b) as being anticipated by Tokailin et al. (U.S. Patent No. 5,126,214, hereinafter referred to as "Tokailin") is hereby traversed and reconsideration thereof is respectfully requested. Applicants respectfully submit that claims 1-6, 19-22, 35-40, 53-56, 69-74, 87-90 and 103, as amended herein, are patentably distinct over the cited reference.

Applicants' Claim 1, as amended herein, recites an organic electroluminescence device having at least an anode, a light-emitting zone and a cathode. The light-emitting zone comprises a mixture containing at least two mutually interdispersed compounds. A

spectrum of the luminescence from the light-emitting zone includes at least one peak at a wavelength which is different from a spectrum of any one of fluorescent peak positions of the at least two compounds included in light-emitting zone. Claims 2-6, 19-22, 35-40, 53-56, 69-74, 87-90 and 103 depend from Claim 1.

Tokailin discloses an electroluminescent element that has an organic electroluminescent (EL) material part having an emitting layer to emit a near ultraviolet ray of light, and a fluorescent material part that absorbs the light emitted from the emitting layer of the EL material part and is capable of changing the wavelength of the light. (See Abstract; Col. 2, Line 64-Col. 3, Line 12; Col. Col. 16, Lines 28-32). Tokailin discloses that the emitting material of the EL material part may be selected from (A) as set forth in Col. 3, Lines 13-Col. 5, Line 18 to obtain an ultraviolet to violet excitation light, or from (B) as set forth in Col. 4, Line 19-Col. 9, Line 58 to obtain blue or bluish green excitation light. The organic EL material part comprising an anode/emitting layer/cathode is made by forming an electrode in a film by the vacuum deposition method or sputtering. The emitting layer is formed as a thin film on the electrode by spin-coating, casting or vacuum deposition. Tokailin also discloses an EL material part comprising an anode/hole-injection layer/emitting layer/cathode, and an anode/hole-injection layer/emitting layer/electron injection layer/cathode made of multiple individual layers. (Col. 10, Line 60-Col. 12, Line 15). The fluorescent material part may be formed of films of a fluorescent dye. (Col. 16, Lines 56-68). Using various fluorescent materials enables production of the three elementary colors of blue, green and red. (See Abstract).

Applicants respectfully submit that Tokailin neither discloses nor suggests Applicants' amended Claim 1 in that Tokailin neither discloses nor suggests ***an organic electroluminescence device having at least an anode, a light-emitting zone and a cathode, wherein the light-emitting zone comprises a mixture containing at least two mutually interdispersed compounds, and a spectrum of the luminescence from the light-emitting zone includes at least one peak at a wavelength which is different from a spectrum of any one of fluorescent peak positions of the at least two compounds included in light-emitting zone***, as set forth in Applicants' amended Claim 1. Tokailin discloses an EL material part and a fluorescent material part. Each of the EL material part and the fluorescent material part comprise separate films or layers. Tokailin does not appear to teach, disclose or suggest a layer made of a mixture of mutually interdispersed compounds. Accordingly, Tokailin neither discloses, teaches, or suggests the feature of a ***light-emitting zone comprising a mixture containing at least two mutually interdispersed compounds***, as set forth in Applicants' amended Claim 1.

Furthermore, Applicants respectfully submit that Tokailin's teachings do not inherently disclose or suggest the feature of a ***spectrum of the luminescence from the light-emitting zone includes at least one peak at a wavelength which is different from a spectrum of any one of fluorescent peak positions of the at least two compounds included in light-emitting zone*** in which ***the light-emitting zone comprises a mixture containing at least two mutually interdispersed compounds***, as set forth in Applicants' amended Claim 1. Tokailin's teachings of different layers of compounds may not be equated to Applicants' ***mixture containing at least two mutually interdispersed***

compounds. Accordingly, it does not follow that the properties of the compounds in the mixture and of the spectrum of luminescence from the light-emitting zone of Applicants' Claim 1 are inherently anticipated, or rendered obvious, by Tokailin's compounds.

Furthermore, Applicants respectfully submit that Tokailin appears to teach away from Applicants' recited Claim 1. Tokailin teaches forming films or layers. Each layer is made of a single layer or individual sublayers comprising compounds that are not mutually interspersed. For example, an EL material part of Tokailin comprises an anode/hole injection layer/emitting layer/electron injection layer/cathode. A hole injection layer is made of a hole transfer compound. The hole injection layer may consist of one layer or an accumulation one of the above-mentioned layers and a hole injection layer using other compound. (Col. 14, Lines 56-61). The emitting layer is a thin layer of an emitting material that is an organic compound. An electron injection layer is made of an electron injection material formed into a thin film. (Col. 11, Lines 27-65).

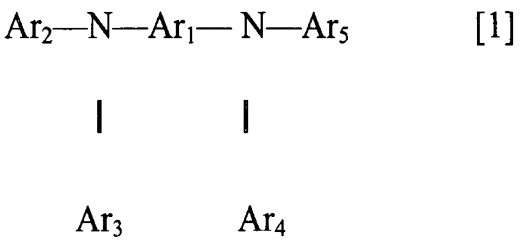
For at least the above noted reasons, Applicants respectfully submit that amended Claim 1 is patentable over Tokailin. Accordingly, Applicants respectfully request that the rejection be reconsidered and withdrawn.

The rejection of Claims 7-12, 23-28, 41-46, 57-62, 75-80, and 91-96 under 35 U.S.C. §103(a) as being unpatentable over Tokailin, is hereby traversed and reconsideration thereof is respectfully requested. Applicants respectfully submit that

Claims 7-12, 23-28, 41-46, 57-62, 75-80, and 91-96 are patentably distinct over the cited reference.

Claims 7-12, 23-28, 41-46, 57-62, 75-80, and 91-96 depend from independent Claim 1 and set forth additional patentable features.

Dependent Claims 7-12 recite that the light-emitting zone is a mixture containing at least one electroluminescent material represented by the following formula [1]



$$Ar_2—N—Ar_1—N—Ar_5 \qquad [1]$$

$$\begin{array}{cc} | & | \\ Ar_3 & Ar_4 \end{array}$$

wherein Ar_1 designates a substituted or non-substituted arylene group having 5 to 42 carbon atoms, Ar_2 to Ar_5 designate, independently with one another, a substituted or non-substituted aryl group having 6 to 20 carbon atoms.

Dependent Claims 23-28 recite that the light-emitting zone comprises a mixture containing at least one fluorescence materials such as a substituted or non-substituted aromatic hydrocarbon, or a substituted or non-substituted fused polycyclic hydrocarbon, or a substituted or non-substituted heterocyclic compound, and a substituted or non-substituted fused heterocyclic compound.

Dependent Claims 41-46 and 57-62 recite that the light-emitting zone is adjacent to the anode.

Dependent Claims 75-80 and 91-96 recite that a hole-injecting zone is present between the anode and the light-emitting zone.

For reasons set forth above, Applicants respectfully submit that Claim 1, as amended herein, is patentable over Tokailin. For at least the same reasons as Claim 1, Applicants respectfully submit that claims that depend from independent Claim 1 are also patentable over the Tokailin since claims that depend from Claim 1 recite additional patentable features.

In view of the foregoing, Applicants respectfully submit that Claims 7-12, 23-28, 41-46, 57-62, 75-80, and 91-96 are patentable over the Tokailin. Accordingly, Applicants respectfully request that the rejection be reconsidered and withdrawn.

The rejection of Claims 13-18, 29-34, 47-52, 63-68, 81-86, and 97-102 under 35 U.S.C. §103(a) as being unpatentable over Tokailin in view of Hitoshi et al. (Japan Patent No. JP 11-074079, hereinafter referred to as "Hitoshi"), is hereby traversed and reconsideration thereof is respectfully requested. Applicants respectfully submit that Claims 13-18, 29-34, 47-52, 63-68, 81-86, and 97-102 are patentably distinct over the cited references, whether taken alone or in any combination.

Claims 13-18, 29-34, 47-52, 63-68, 81-86, and 97-102 depend from independent Claim 1, either directly or indirectly, and recite additional patentable features over the Claim 1. For reasons set forth above, independent Claim 1 is patentable over Tokailin. Applicants further submit that combining Tokailin with Hitoshi also neither discloses nor suggests Applicants' amended Claim 1, or claims that depend therefrom, for reasons set forth below.

Hitoshi discloses an electroluminescent element with high brightness that has the specific compound in a luminous layer and in a hole transport layer. Hitoshi is used in the outstanding Office Action to show that the missing feature of the Tokailin reference of the use of amine compounds is known in the art.

Applicants' amended Claim 1 is neither disclosed nor suggested by the references, taken separately or in combination, in that the references neither disclose or suggest ***an organic electroluminescence device having at least an anode, a light-emitting zone and a cathode, wherein the light-emitting zone comprises a mixture containing at least two mutually interdispersed compounds, and a spectrum of the luminescence from the light-emitting zone includes at least one peak at a wavelength which is different from a spectrum of any one of fluorescent peak positions of the at least two compounds included in light-emitting zone***, as set forth in Applicants' amended Claim 1. As set forth above, Tokailin discloses an EL material part and a fluorescent material part. Each of the EL material part and the fluorescent material part comprise separate films or

layers. Tokailin does not appear to teach, disclose or suggest a layer made of a mixture of mutually interdispersed compounds. Accordingly, Tokailin neither discloses, teaches, or suggests the feature of a ***light-emitting zone comprising a mixture containing at least two mutually interdispersed compounds***, as set forth in Applicants' amended Claim 1. The Hitoshi reference is used to supply the missing feature of the Tokailin reference of the use of amine compounds as being known in the art. The Hitoshi reference does not supply the feature of Claim 1 missing from Tokailin of a ***light-emitting zone comprising a mixture containing at least two mutually interdispersed compounds.*** Accordingly, the references, taken separately or in combination, do not disclose, teach or suggest the missing feature of a ***light-emitting zone comprising a mixture containing at least two mutually interdispersed compounds***, as set forth in Applicants' amended Claim 1.

Applicants respectfully submit that the references are concerned with a luminescence of a dopant which is the result of transportation of energy from a host material, or a luminescence of a dopant which is the result of a dopant trapping a carrier that moves within a host. Therefore, the wavelength of the luminescence disclosed in the references is located near, such as within a few nanometers from, the fluorescence of the dopant. This wavelength of the luminescence of the references differs from the wavelength of Applicants' amended Claim 1, which is different from a spectrum of any one of fluorescent peak positions of the at least two compounds included in the light-emitting zone.

The Office Action states that a mixture of compounds would inherently give a

different spectrum than individual compounds. The Office Action appears to state that the spectrum of luminescence from the light-emitting zone of Claim 1 which includes *a peak at a wavelength which is different from a spectrum of any one of fluorescent peak positions of the at least two compounds included in the light-emitting zone* may be interpreted as *a peak at a wavelength which shifts within a few nanometers from the wavelength of one of the compounds mixed which is caused by a change in permittivity*. If this is the case, Applicants respectfully disagree and respectfully submit that the spectrum of luminescence from the light-emitting zone of Claim 1 means a peak at a wavelength of a new luminescence which is located at a different position apart from a spectrum of any one of fluorescent peak positions of the at least two compounds included in the light-emitting zone.

Referring to Applicants' Figure 5, shown is an EL spectra at a time when a DC voltage of 10V is applied to the organic EL device of Example 3. The fluorescence spectra of compounds represented by formula [3] and [20], and the luminescence spectrum of the device of Example 3 are shown in the Figure 5 in which the luminescence spectrum has a peak at 641nm and a shoulder at 680 nm. These wavelengths are different from both the fluorescent peak positions of the two compounds [3] and [20] in which the compound [3] has a peak of 470nm and the compound [20] has a peak of 580 nm. The displacement of the peak position the luminescence spectrum is too large to be considered as a shift in wavelength caused by a change in permittivity by mixing, for example, as can be seen from the above-referenced Figure 5 in which there exists a shoulder at 580 nm in the luminescence spectrum due to a peak of compound

[20].

For reasons set forth above, Applicants claimed organic EL device differs from those of the references in that the spectrum of the luminescence includes a new peak at a wavelength which is quite different from any anticipated shift of wavelength by mixing compounds.

In view of the foregoing, Applicants respectfully submit that Claims 13-18, 29-34, 47-52, 63-68, 81-86, and 97-102 are patentable over the references, taken separately or in combination. Accordingly, Applicants respectfully request that the rejection be reconsidered and withdrawn.

Based on the above, Applicants respectfully request that the Examiner reconsider and withdraw all outstanding rejections and objections. Favorable consideration and allowance are earnestly solicited. Should there be any questions after reviewing this paper, the Examiner is invited to contact the undersigned at 617-248-4038.

Respectfully submitted,
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Date

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